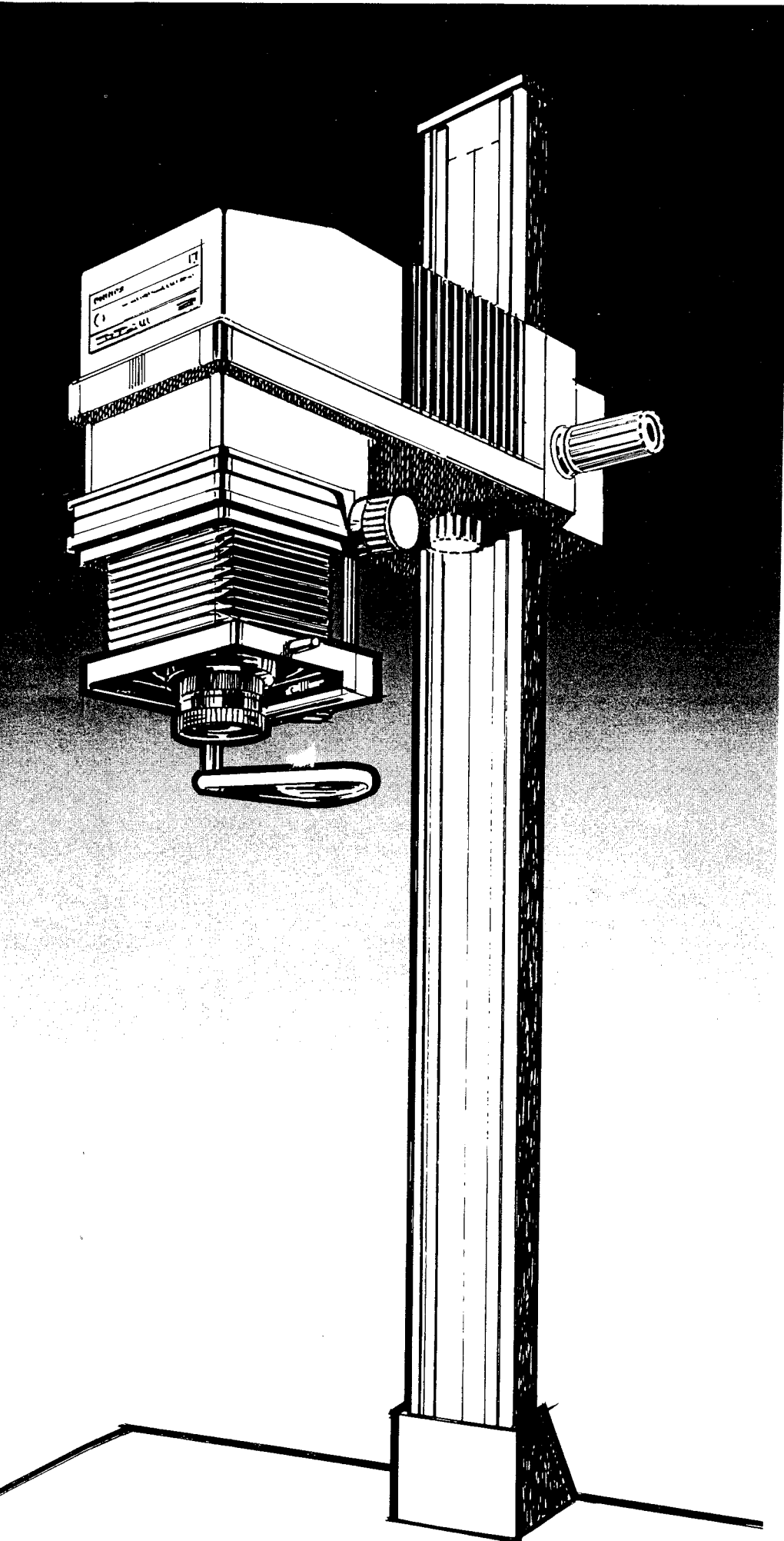


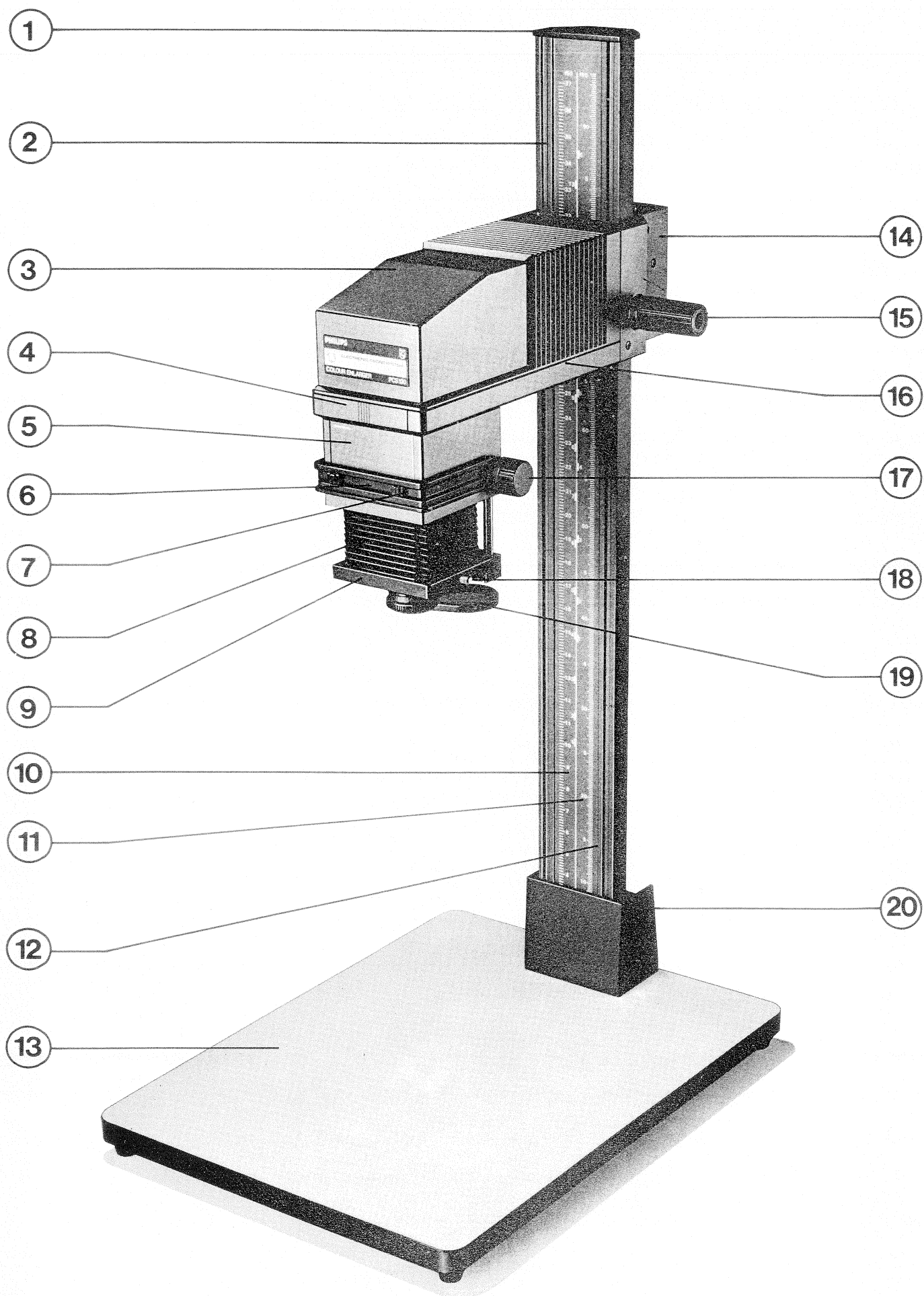


**PCS 130**



**INSTRUCTIONS FOR USE**

**PHILIPS**



# PCS 130

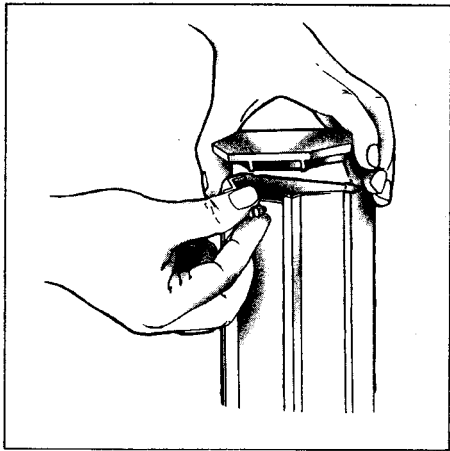
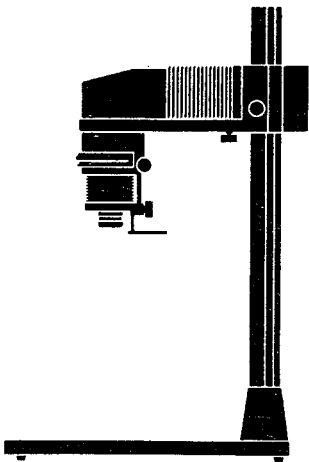


Fig./Abb. 3

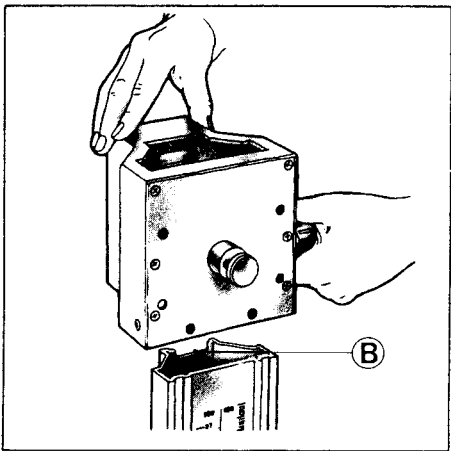


Fig./Abb. 4

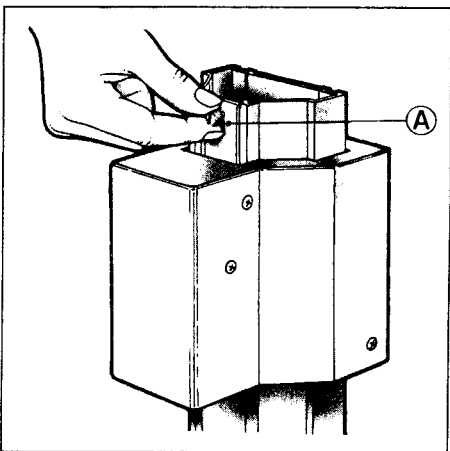


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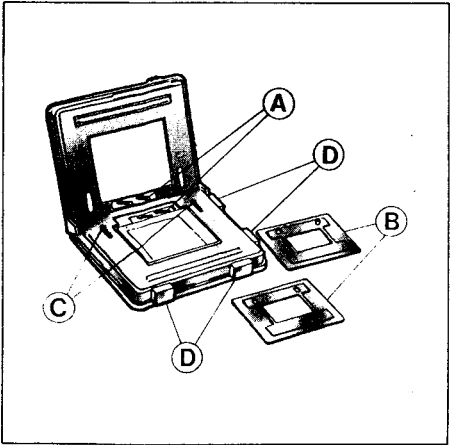


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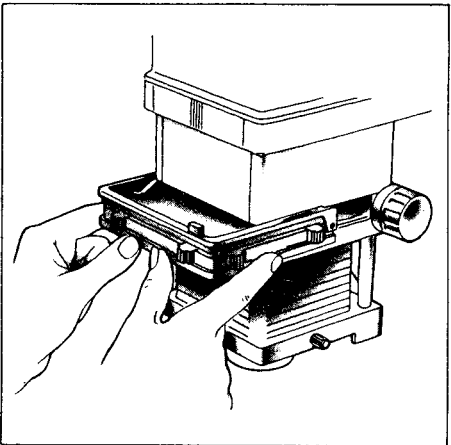


Fig./Abb. 10

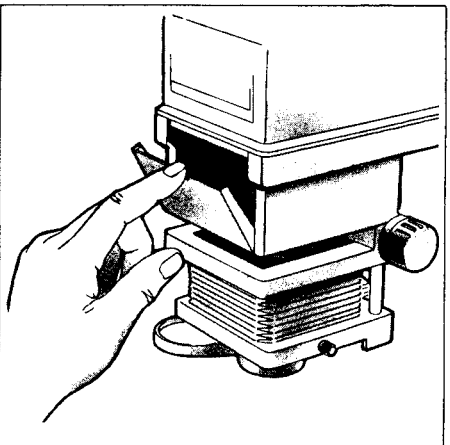


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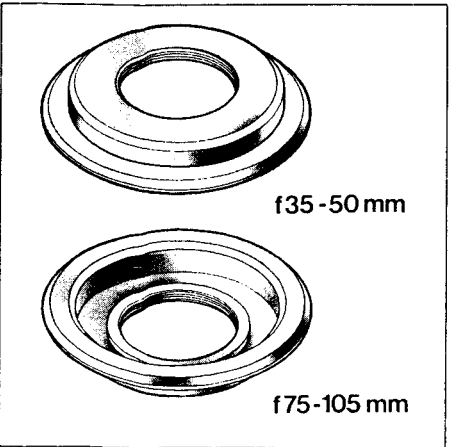


Fig./Abb. 15

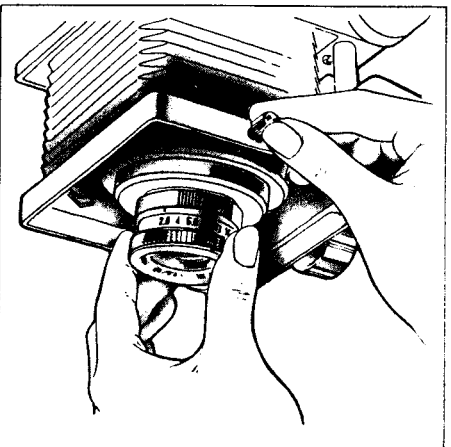


Fig./Abb. 16

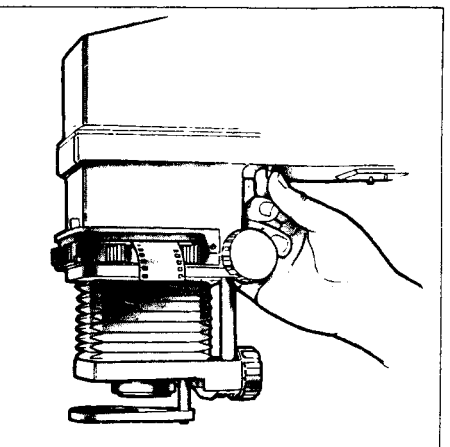


Fig./Abb. 17

# PHILIPS



## USING

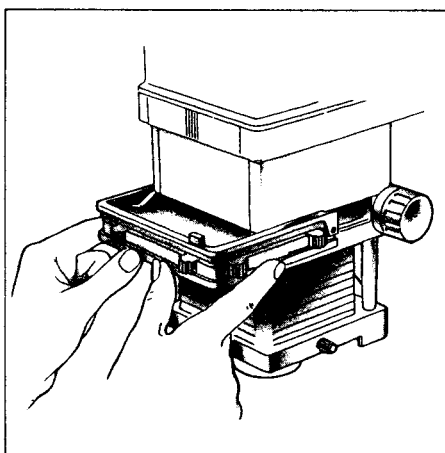


Fig./Abb. 18

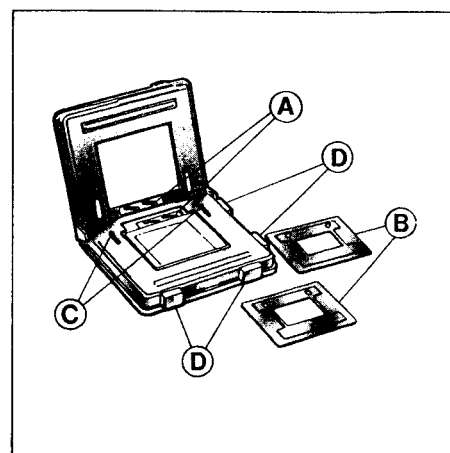


Fig./Abb. 19

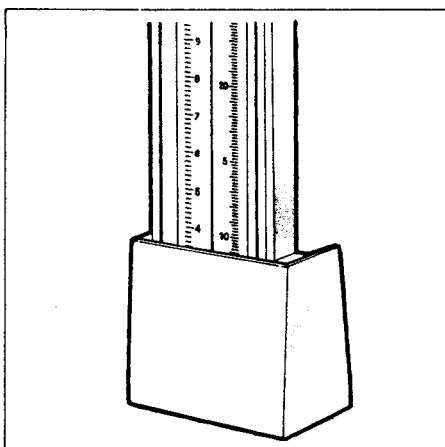


Fig./Abb. 23

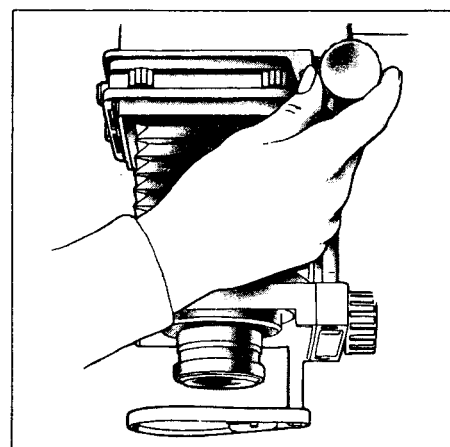


Fig./Abb. 24

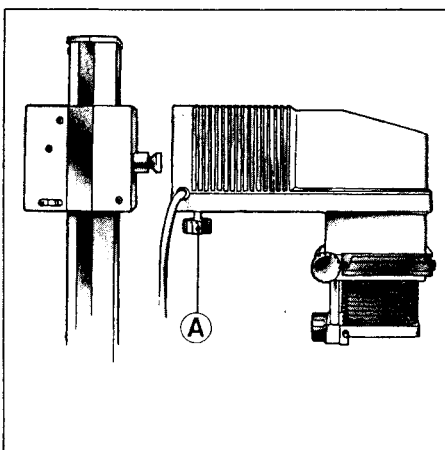


Fig./Abb. 28

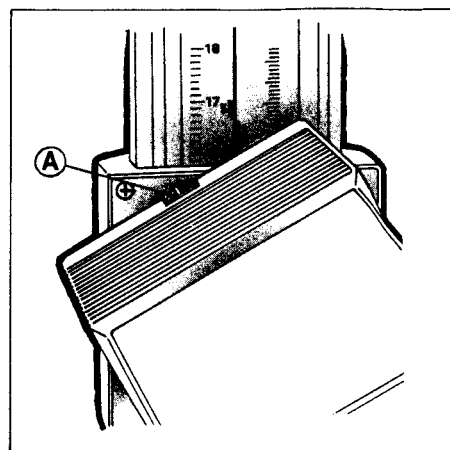


Fig./Abb. 29

## HOW TO ASSEMBLE AND USE YOUR NEW PCS 130 ENLARGER

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## INTRODUCTION

Your new Universal Color Enlarger from Philips will enable you to derive maximum benefit from your Photography with a host of design points for better, more easily made, black and white or color enlargements.

The enlarger is supplied with a lampholder for a standard 211, 212 enlarger lamp and is suitable for both black and white and conventional color printing, using subtractive filtration.

However, the enlarger also forms a part of the Electronic Tri-One Enlarging System for a completely new and far superior and simpler method of color enlarging. This system also offers benefits for black and white printing. Detailed instructions on the Electronic Tri-One System are packed with the Light Source and Control Unit (optional accessory).

Before assembling the enlarger, read these instructions carefully. This will assure you excellent results without disappointment.

For further information on black and white and color enlarging there are numerous excellent books available, from your photo dealer.

## THE PARTS OF YOUR ENLARGER

- ① Cap for column
- ② Aluminium section column
- ③ Removeable cover
- ④ Filter drawer
- ⑤ Condenser access flap
- ⑥ Negative carrier
- ⑦ Picture masking controls
- ⑧ Bellows
- ⑨ Lens board
- ⑩ Inch scale
- ⑪ Enlargement factor scale
- ⑫ Metric scale
- ⑬ Baseboard
- ⑭ Enlarger slide
- ⑮ Height adjustment control
- ⑯ Enlarger housing
- ⑰ Focus knob (left & right hand)
- ⑱ Lens mount fixing screw
- ⑲ Filter holder
- ⑳ Base of column

## HOW TO ASSEMBLE YOUR ENLARGER

The three main elements have been packed in the shipping box as follows:

- 1) The enlarger housing including the enlarger lamp-holder, filter drawer with insert frame and in addition -
  - negative carrier
  - glass inserts for negative carrier
  - metal mask for 35 mm format
  - condenser set
  - heat filter
  - universal lens mount (M39)
  - fixing bolt for column
- 2) Enlarger column and column base
- 3) Baseboard

### First assemble the column and baseboard

Place the baseboard with rubber feet on the underside so that the hole is clear of the working surface to enable the fixing bolt to be pushed through from underneath. Position the base of the column above the hole so that the winged bolt (see Fig. 1) can be threaded into the column base and tighten until the base of the column is firmly fixed.

### Fixing the enlarger slide

Remove the fixing screw for the counter-spring bracket and the column cap (see Fig. 3). Push the enlarger slide carefully onto the column profile (see Figs. 4 + 5), making sure that the counter-spring bracket A locates with the special cut-out B at the rear of the column. Fasten the counter-spring bracket firmly with the fixing screw and replace the column cap.

### Insert the heat filter

By pushing the front of the condenser compartment inwards with a finger so that you can pull out the filter drawer by its finger grip (see Fig. 7). Place the insert frame and the heat filter in the drawer (see Fig. 8). No heat filter is required for the ETC Light Source. The same procedure is used for inserting color filters or masks. Ensure the heat filter is on top. The insert frame should be used for filters for all formats except 6 x 7 when the drawer is used without the insert frame. The insert frame must be removed when using the ETC Light Source.

### Placing the glass inserts or metal masks in the negative carrier

Two retaining locks A (see Fig. 9) fixed in slide aside slots hold the glass insert, glassless masks or other accessories (see page 3) in position. Place the glass inserts with bevelled edge facing towards the inside of the carrier. Mount glassless metal masks with the raised slide facing inwards. For 35 mm (24 x 36 mm) format, metal masks B are provided.

### Installing the condensers

Remove negative carrier (see Fig. 10). Press lightly on the condenser flap and remove the filter drawer (as for inserting heat filter). Then remove the condenser flap by pressing the unlocking mechanism downwards (see Fig. 11) so that the flap can be tilted forwards and removed. Push first top condenser and then bottom condenser (see Fig. 12) into the condenser chamber as far as possible and replace the condenser flap and filter drawer. See page 3 for accessory condensers.

### Installing the red filter/diffuser holder

Push the shaft of the red filter holder into the hole located close to fixing screw A (see Fig. 13) so that the slot in the shaft locates with the screw for fixing. The filter can be removed or exchanged for a diffuser or effect filter by turning the catch on the underside (see Fig. 14).

### Inserting the lens

First check which side of the universal lens mount (see Fig. 15) is suitable for the focal length of your enlarging lens. The mount has 39 mm Leica screw thread for, on one side, lenses with a focal length of 75 mm and up-

wards, and on the other for 50 mm and less. Screw in the lens until hand tight and then position the lens mount in the lens board and tighten the retaining screw (see Fig. 16). Make sure that the lens mount is positioned so that the diaphragm scale on the lens can be read.

### Insert the enlarger lamp

By loosening the two coin-slot bolts (see Fig. 17) under the enlarger housing so that the cover can be removed. Take care to avoid damaging the mirror, ensuring no finger prints or smudges. Screw in a #211, 212 enlarger lamp and replace cover. The lampholder has been correctly centered in the factory. If you have purchased the Electronic Tri-One Color System, see the instructions for installing the light source which are packed with the ETC system PCS 150.

## THE SYSTEM ENLARGER

Your enlarger is a universal color enlarger suitable for all formats between film size 110 and the 6 x 7 cm format. It is supplied complete with all necessary accessories for use with formats between 24 x 36 mm (35 mm film size) and 6 x 6 cm (120/220 film sizes).

For smaller formats and for 6 x 7 cm, accessory film masks and exchangeable condensers are available. In addition, other accessories are available for 24 x 36 mm to 6 x 6 cm to suit your particular method of working, including a 5 x 5 cm metal mask for mounted slides.

The red filter can be removed or replaced with the Philips diffuser for use with a color analyzer. The holder will also accept 58 E effect filters. For details on how to remove or change filters see assembly instructions.

### Accessories

Replacement condensers for 6 x 7 cm format.	PCB 167
Bottom condenser for 24 x 36 mm and smaller formats*.	PCB 135
Glassless metal masks for:	
12 x 17 mm, 110 format	PCB 117
18 x 24 mm, 1/2 x 35 mm	PCB 127
24 x 24 mm, rapid format	PCB 126
28 x 28 mm, 126 format	PCB 180
4 x 4 cm, 127 format	PCB 140
mounted 5 x 5 cm slides	PCB 150
Anti-Newton glass inserts	PCB 102
Lens mount for f 28 mm lens (M39)	PCB 139
Conversion ring for M25 thread	PCB 125
Reproduction camera mount	PCB 101
Electronic Tri-One System Light Source	
and Control Unit	PCS 150
	PCB 104

\* The standard bottom condenser is suitable for 24 x 36 mm format negatives. However, where you need the replacement lower condenser for formats smaller than 24 x 36 mm, there is a marginal improvement in the distribution of the light when this condenser is also used for 24 x 36 mm.

## Lens and format guide

Film format	Recommended lens focal length (mm)	Max. enlargement at baseboard level (cm)	
12 x 17 mm	28	30 x 42	(x 24,8)
18 x 24 mm	35	38 x 50	(x 20,8)
24 x 36 mm	50	32 x 47	(x 13,2)
4 x 4 cm	75/80	32 x 32	(x 8,4)
6 x 6 cm	75/80	49 x 49	(x 8,4)
6 x 7 cm	90	38 x 44	(x 6,5)

## Condenser guide

Film format	Condenser set	
	BOTTOM	TOP
12 x 17 mm	F 91 (A)	F 145 (S)
18 x 24 mm	F 91 (A)	F 145 (S)
24 x 36 mm	F 135 (S)	F 145 (S)
24 x 36 mm <sup>1)</sup>	F 91 (A)	F 145 (S)
4 x 4 cm	F 135 (S)	F 145 (S)
6 x 6 cm	F 135 (S)	F 145 (S)
6 x 7 cm	F 145 (A)	F 160 (A)

A = Accessory. S = Standard.

<sup>1)</sup> Universal set F 135/145 is suitable for 24 x 36 format. However, if smaller formats are used, the F 91/145 combination has optical advantages for use with the 24 x 36 format.

## USING YOUR ENLARGER

### General

#### Inserting the negative

Remove the negative carrier from the enlarger (see Fig. 18). The carrier is designed so that the upper part of the carrier will stand in an open position (see Fig. 19). Position the negative with the help of the two adjustable film guide pins C, close the negative carrier and push into the enlarger as far as it will go. To adjust the position of a negative with the carrier in position, pull open the negative carrier which is held open by a catch (see Fig. 20).

When the film is correctly positioned, push tab (see Fig. 21) to lock the negative in position.

#### Height/Degree of enlargement adjustment

To select the required degree of enlargement, the enlarger can be moved on the column by turning the 'twist grip' height adjustment control a quarter turn towards yourself (see Fig. 22). The enlarger is then free to move easily but controlled by the counter spring to the required height. The column is fitted with mechanical bottom and top endstops. To fix the enlarger in the selected position, turn the 'twistgrip' a quarter turn away from yourself.

#### Using the enlargement factor scale

The center scale on your enlarger column indicates the extent of your enlargement. For example at factor 1, the image on the enlarging easel is the same size as the unmasked image on the negative. At factor 2, the linear enlargement will be x 2 and so on. Separate scales are provided for f 50 and f 80 mm lenses. There is also a metric and inch scale. Use of scales (see Fig. 23) will help you to repeat results consistently.

## Focusing

For ease of working, there are two (left and right-handed) focusing controls (see Fig. 24). These are friction drive controlled and the friction wheel at the rear of the enlarger housing can be adjusted by screw A (see Fig. 25). If it is found impossible to obtain focus, check that the lens has been mounted on the correct side of the lens mount for its focal length. Focusing is best carried out at the maximum lens aperture (ETC System switched to 'focus' position.) Focusing must be carried out on the same surface i.e. enlarging easel or baseboard as the exposure.

## Using the adjustable masks

When using the universal negative carrier without special accessory masks (or for masking a section of a negative), the four sliding controls D (see Fig. 19) can be used to mask the desired picture area. Switch the enlarger lamp on so that the required image can be inspected on the baseboard.

## Exposure

Before exposing the photographic paper, ensure that the lens is stopped down to the chosen aperture. Before placing the paper in position switch-off the enlarger lamp or place the red filter in front of the lens. The easiest and most accurate method of controlling exposure is by using a coupled darkroom timer, such as Philips PDC 011 which switches the enlarger lamp (in the case of the ETC System, a timer and standby, focus and start positions are incorporated in the control unit).

## Enlargements off the baseboard

Your enlarger is designed to permit enlargements to the limit of the capability of the negative and quality of your enlarging lens. For floor projection (see Fig. 26), place sufficient books or other objects to act as a counterweight on the front of the baseboard. Turn the baseboard around so that the base of the column projects over the edge of the working surface. Loosen the column fixing bolt sufficiently to reverse the column for floor projection and then retighten the bolt. Arrange the baseboard so that the enlarged image will clear the working surface as possible. Ensure that the counter balance weight is sufficient for safety. For wall projection (see Fig. 27), the enlarger can be turned through 90° to the left or right by slackening knob A (see Fig. 28). Pull housing carefully away from column until enlarger housing can be rotated. The correct 90° position has a mechanical stop.

For floor or wall projection, it is important to ensure that the negative surface and the surface on which the image is projected are parallel. Failure to do so will cause part of the image to be out of focus.

## Distortion correction

The enlarger is provided with the ability to correct distortion which may have occurred when the photograph was taken. By use of the Scheimpflug\* method, distortion can be corrected without any loss of edge-to-edge focus. The negative surface can be adjusted by tilting the enlarger housing. Unscrew column knob A (see Fig. 28) and pull housing slightly away from the column so that you can see the degree of tilt on the scale A (see Fig. 29) from 15° to 45°. The datum mark is on the cen-

ter of the enlarger housing cover. Tighten knob A (see Fig. 28) to lock in position. To swivel the lens board, first unscrew knob B (see Fig. 25) at rear of lens board then move in required direction with aid of scale and tighten knob to hold in desired position. The enlarging easel should be tilted correspondingly.

**\*Scheimpflug Law** (see Fig. 30): If you imagine the planes of the negative surface (a), lens board (b) and enlarging easel (c) drawn as lines, these lines should converge at one point to ensure that edge-to-edge focus is retained on the corrected image.

### **Color printing using filter drawer**

Using the filter drawer in combination with the standard enlarger lamp, your enlarger is suitable for conventional color enlarging using subtractive filters. Description of how to change filters is given on page 2. Use insert frame provided for formats up to and including 6 x 6 cm. For 6 x 7 use drawer without insert frame. If you have never attempted color printing before then we recommend that you obtain a copy of one of the numerous books or publications about making color enlargements using subtractive filters.

### **MAINTAINING YOUR ENLARGER**

Little maintenance is required to keep your enlarger in good condition. It is recommended that the enlarger is covered with the accessory dust cover when not in use to keep all the optical components and the enlarger lamp free from dust.

### **No lubrication is required for your enlarger.**

However, from time to time, the optical components will require cleaning to maintain their performance. See instructions for removing condensers and enlarger housing cover for access to the condensers, mirror and enlarging lamp. The optical components should be cleaned by first removing loose dust with a soft lens cleaning brush with bellows or antistatic lens cleaning brush. Then wipe the surface of the optics gently with a special lens cleaning cloth, ensuring first that no dust or grit particles which could cause scratching are adhered to the optical surface. To replace a lamp, remove the enlarger housing cover as explained on page 2 and replace the lamp. To replace a lamp in the ETC Light Source, see separate instructions in the ETC System instructions for use.

### **INSTALLATION INSTRUCTIONS FOR THE FINE FOCUS CONTROL KNOB**

The fine focus control is packed separately so that it can be installed in either the right or left handed mode, depending on the needs of the user. Installation is simple and straightforward.

Remove either the right or left standard focusing knob from the enlarger by simply pulling it straight off. (This knob is a press fit, and a steady straight pull will do.)

Please note that the fine focus control consists of three pieces:

- a mounting collar with brass ring gear
- a knob assembly with brass planetary gears
- a set screw

While holding the mounting collar and knob assembly together, so that the ring gear engages the small

planetary gears, press the entire assembly into place on the focusing shaft of the enlarger. You will notice that the flat on the shaft must be lined up with the flat in the assembly. The flat outer portion of the mounting collar should be facing you when you are standing in front of the enlarger.

Once the assembly is pressed into place, insert the set screw through the hole in the bottom of the mounting collar. Tighten it to secure the entire assembly.

If you experience any binding or tightness of the fine focusing control, it means that the knob assembly was pushed a little too far onto the focusing shaft. WITHOUT REMOVING the set screw or mounting collar, simply grasp the large coarse focusing knob and pull slightly outward. This should free the inner, smaller, fine focusing knob.

The fine focusing control is maintenance free and should give you years of trouble free service. If you have any further questions, consult your photo dealer.



# PCS 130

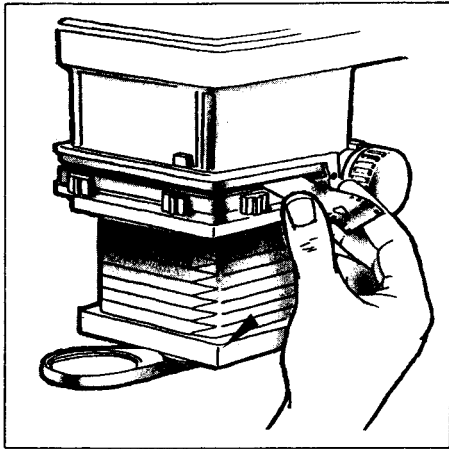


Fig./Abb. 20

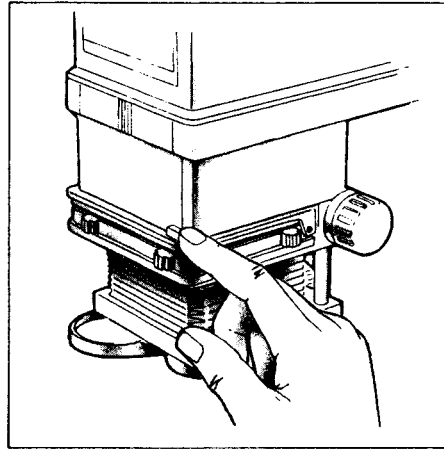


Fig./Abb. 21

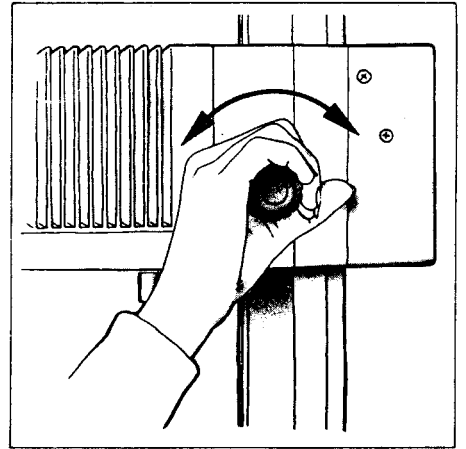


Fig./Abb. 22

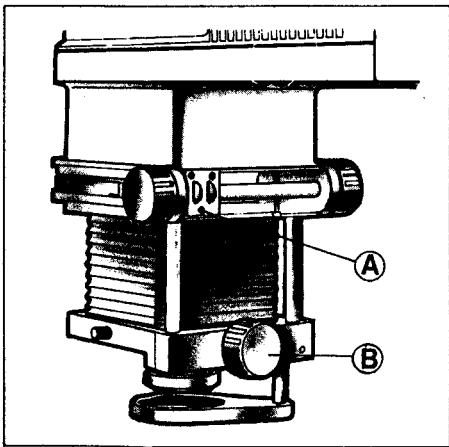


Fig./Abb. 25

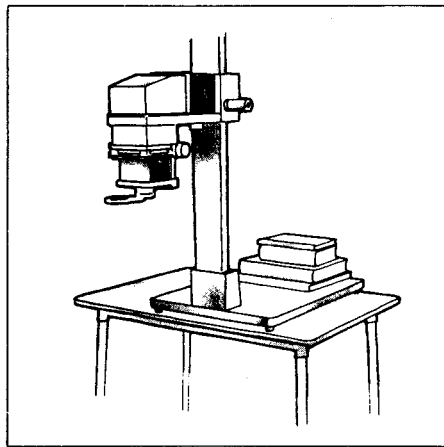


Fig./Abb. 26

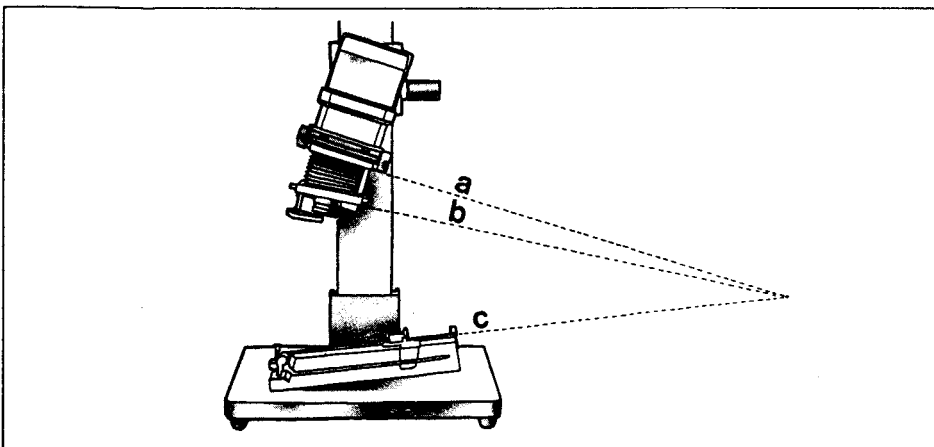


Fig./Abb. 30

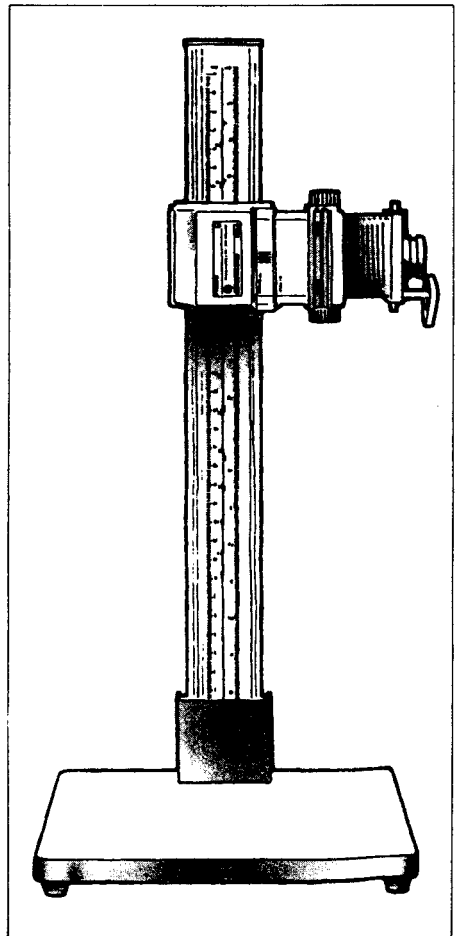


Fig./Abb. 27

# PHILIPS



## ASSEMBLY

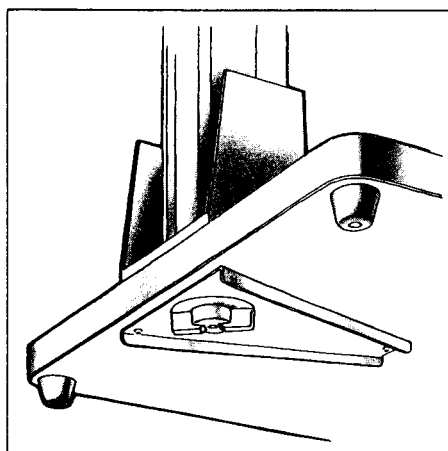


Fig./Abb. 1

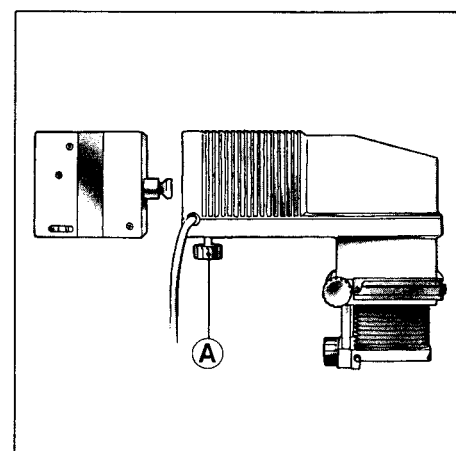


Fig./Abb. 2

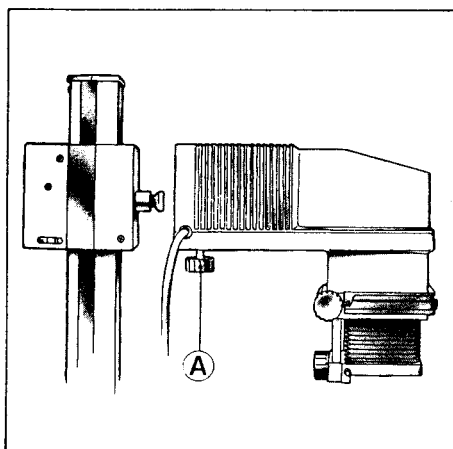


Fig./Abb. 6

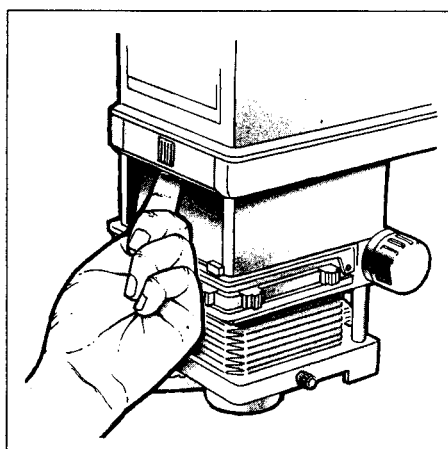


Fig./Abb. 7

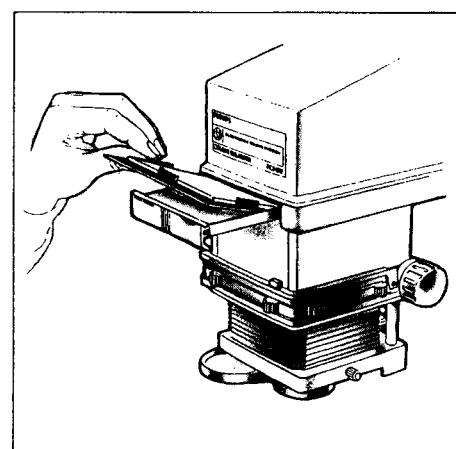


Fig./Abb. 8

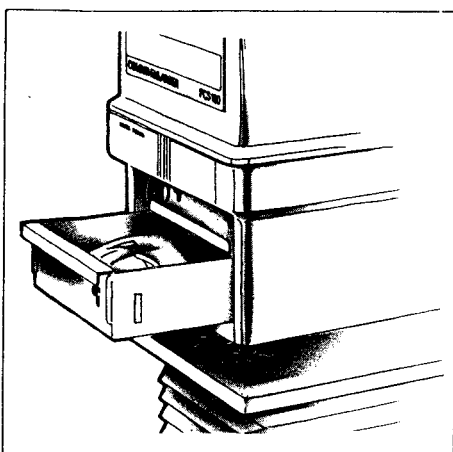


Fig./Abb. 12

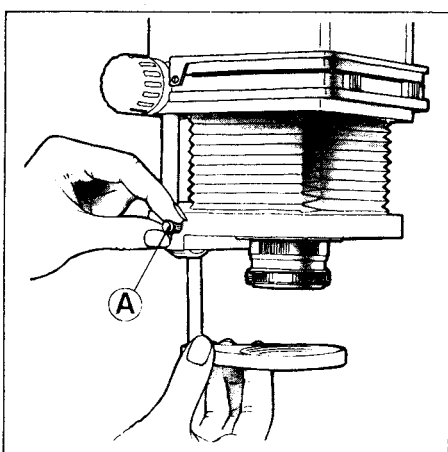


Fig./Abb. 13

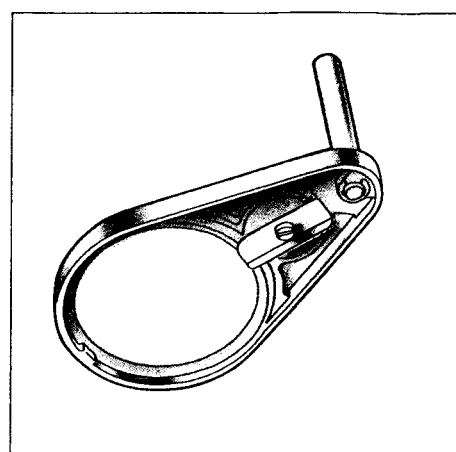


Fig./Abb. 14

# PHILIPS

## ELECTRONIC COLOR SYSTEM

### *How Is It Different?*

#### **“BTB” DENSITY CONTROL**

No calculations or corrections. For the first time color and density are truly separate. The “Automatic Density System” lets you change color without changing density...change density without changing color.

#### **OPTIMUM PRINTING TIME and LENS APERTURE**

Choose from a wide range of lens aperture/exposure time combinations. Select the best lens aperture and then vary exposure time without changing print density!

#### **STRAIGHT FORWARD COLOR CONTROL**

Nothing to learn or memorize. Print a little too red? Just dial out some red! Want that warm early morning look? Just dial in some yellow. It's as easy as that! No change in exposure is required.

#### **BUILT IN SOLID STATE TIMER and VOLTAGE STABILIZER**

No expensive extras to buy. Totally “Electronic” color head with no moving parts to wear out or become inaccurate. Negative carrier and universal lens board included at no extra cost!

#### **LIGHT-TIGHT CONSTRUCTION**

Unique “Thermal Design” eliminates light leaks and paper fogging, yet needs no cooling fan. Absolutely no vibration to steal away print sharpness!

#### **LONG LIFE BULBS**

In normal use, lamps have been tested to last more than 1,000 hours!

#### **MATCHED COLOR SYSTEM**

No wasted energy. Only the useful bands of light, which match the sensitivity of the paper.

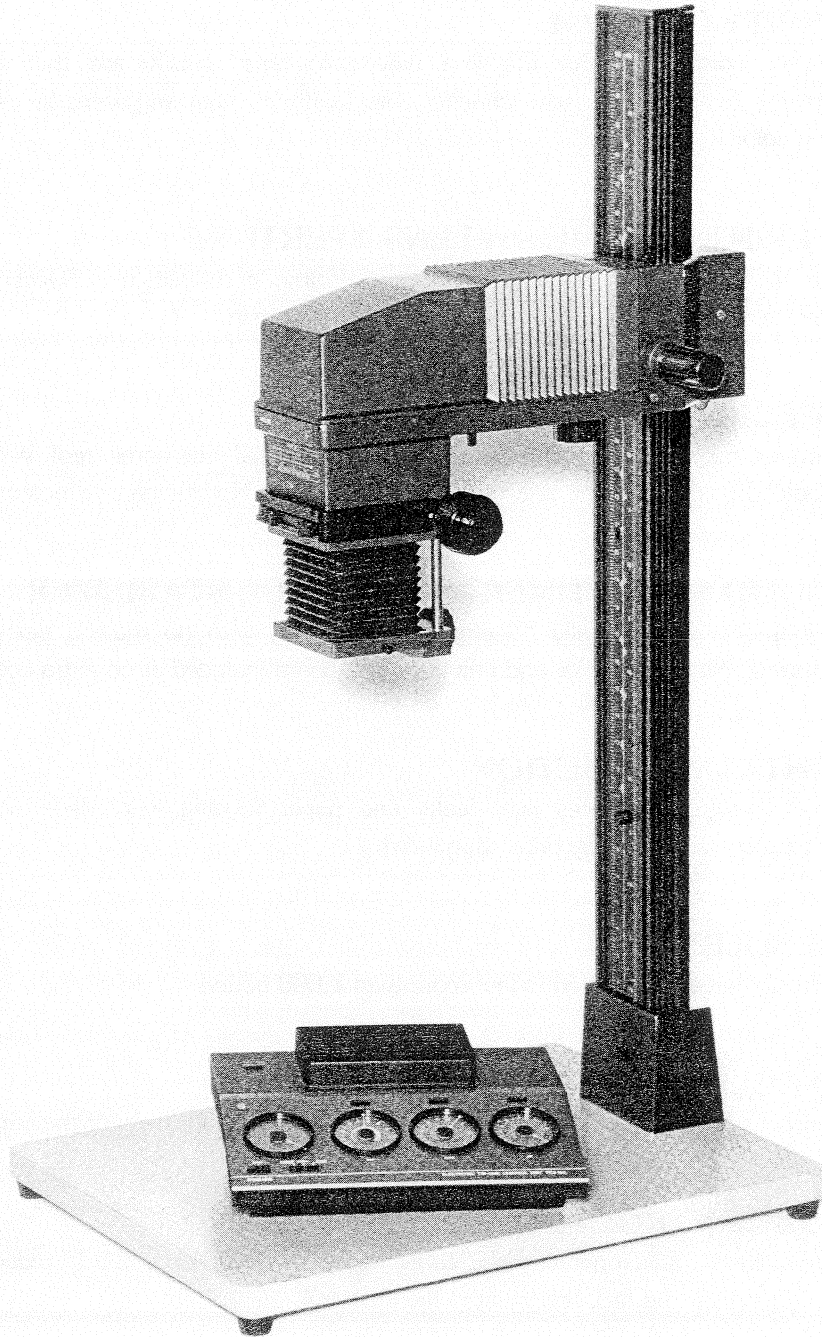
#### **FINE FOCUS CONTROL**

Course and fine focus adjustments with either right or left hand. 10:1 reduction for fine focus gives superb control and feel, the finest in the industry!

#### **IDEAL FOR BLACK & WHITE**

Increased contrast range and control with variable contrast black & white papers due to the exact matching of light to paper. No change in exposure necessary when changing contrast!

*The New Philips Electronic Color System*



*It Makes Decisions For You*

## *Why Is It Different?*

### **"BTB" DENSITY CONTROL**

In conventional color printing, every filtration change requires a corresponding change in exposure. The calculations necessary are tedious and difficult, especially for the beginning printer. With the Philips Tri-One System, all of the calculations are eliminated. In normal use, **CHANGING THE FILTRATION DOES NOT CHANGE THE EXPOSURE.**

Each of the bands of light produced by the head exposes only the layer of emulsion it was designed to expose and no other. If a print appears to be too green it looks that way because not enough dye was produced in the magenta layer of emulsion. By dialing out some green on the control panel, we are increasing the exposure given the magenta layer, therefore producing more dye. We have only changed the amount of dye produced in one layer of emulsion, not all three. Therefore, only the color changes, not the density. Color changes of more than .40 in any color can be made with no change in overall density.

### **OPTIMUM PRINTING TIME AND LENS APERTURE**

In conventional color printing, choosing an f stop dictates the exposure time for a well exposed print. For the first time, the Philips Tri-One System allows you to change this relationship. Pick an f stop, and then pick the printing time you want to use. By adjusting the three color channels equally, you will get the right exposure with the printing time and f stop chosen, and the color balance remains unchanged.

### **STRAIGHT FORWARD COLOR CONTROL**

This is color printing as it should be, all fun and no calculations. Simply dial in any color modification you like. The changes are made just as you would say them...more green, less blue, etc. instead of the usual color theory and calculations. The creative process is never interrupted by the technology. This is the ideal system for the first-time color printer, as there is no complicated theory to learn.

### **BUILT IN SOLID STATE TIMER AND VOLTAGE STABILIZER**

No expensive extras to buy. For consistently top quality prints, a voltage stabilizer must be used with any color enlarger. The Philips Tri-One System incorporates a unique solid state stabilizer, matched to the Tri-One color head. In addition, a specially designed solid state timer is included in the control panel for the color head. This application of electronics to a color printing system eliminates all the usual moving parts. There is nothing to wear out or become inaccurate. Even a difference in the color temperature of two different lamps will not change the color of the print, as it will in a conventional color head.

## **LIGHT-TIGHT CONSTRUCTION**

After extensive research and development, Philips engineers have come up with a unique "Thermal Design" which eliminates three of the biggest enlarging problems. First, the head is sealed so there can be no light leaks to fog the paper, or worse, subtly veil the pure rich colors built into the paper. Next, because the light output of the head is matched to the paper, excessive amounts of heat are not produced, so your slides and negatives will not buckle or pop out of focus. Lastly, the "Thermal Design" made the elimination of a cooling fan possible, so there can be no vibration to steal sharpness. In fact, once the negative or slide is composed and focused, there is no reason to even touch the enlarger.

## **LONG LIFE BULBS**

The specially developed concept of the Tri One System permits the lamps in the color head to operate at low voltage, thus producing very little heat. In other brand color heads, the heat is so intense that the dichroic filters literally expand and create changes in density. The Philips color head offers the dual advantage of long life bulbs, estimated at more than 1,000 hours, plus 100% repeatability due to the lower temperatures at the dichroic filters.

## **MATCHED COLOR SYSTEM**

Color paper is designed to be exposed by three specific colors of light. Any exposure given by colors or wave lengths other than these three, is wasted energy. Subtractive printing is inefficient by its very nature. We start off with an excessive amount of white light which contains the three colors we want as well as the wave length and heat we don't want. Then, by filtering the white light we end up with only a small portion of the light with which we started. In the Philips Tri-One System, we only produce the three usable wave lengths of light and then only in the amounts we are going to use and no more. All the light is used, nothing is wasted! The Philips color head utilizes extremely narrow band Dichroic filters which pass only pure color...no infrared, no ultra violet, and no white light. The result is deeper color saturation and better contrast.

## **FINE FOCUS CONTROL**

The weakest part of most enlargers is the focusing system. The Tri-One System incorporates a unique ten to one geared reduction that makes focusing a pleasure. It can be used for either right or left hand operation, and provides both fine and course adjustments.

## **IDEAL FOR B & W**

Variable contrast B & W paper, like color paper, is designed to be exposed by specific colors of light. Each specific color of light produces a different contrast grade in the finished print. The Philips Tri-One System produces not only the exact color of light needed in each case, but, also extends the contrast range of variable contrast B & W paper. (Grades 0-5) Additional advantages are: the contrast range is continuous rather than in steps as it is with conventional filters; and the basic exposure doesn't change when you change contrast grades!

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